







Day 4

 <p>16/08/2005</p>	 <p>16/08/2005</p>	 <p>16/08/2005</p>
<p>1. Can you see the pirate ship on the horizon? (Just kidding!)</p>	<p>2. The crane hoists the bongos over the side and lowers them into the water.</p>	<p>3. The lead ball hanging below the bongos gives them enough weight to sink to the bottom.</p>
 <p>15/08/2005</p>	 <p>15/08/2005</p>	 <p>15/08/2005</p>
<p>4. Mrs. Raybourn steadies the lead weight to keep it from swinging as the bongos are brought in.</p>	<p>5. The plankton in the nets are washed down into a sieve.</p>	<p>6. Mrs. Raybourn ties off the bottom of the net so that it is ready for the next tow.</p>

Date: August 17, 2005
Time: 16:33 GMT 12:33 p.m. EDT

Latitude: 40.54 N
Longitude: 67.44 W
Wind direction: W (286 degrees)
Wind speed: 11.0 knots
Sea water temperature: 20.5°C
Sea level pressure: 1012.2 millibars
Cloud cover: 00 Clear

Question of the Day: What kinds of animals depend on plankton as a major food source?

Yesterday's Answer: Phytoplankton are producers, since they make their own food.

Science and Technology Log: On this cruise aboard the Albatross IV we will be taking plankton samples at 90 stations off the coast of New England. The stations are randomly chosen by a computer, so some are close together and some are further apart. The idea is to get a broad picture of the ecological health of the entire region.

The actual process of plankton collection is called a plankton tow, because the nets are towed through the water while the ship is moving slowly, collecting plankton as the water moves through them. Can you guess why the collection apparatus is called a bongo? (Look at picture #2 above.) The frame looks just like a pair of bongo drums! Attached to the frame are two long nets that collect the plankton. The bongo isn't heavy enough to sink into the water evenly on its own, so a lead ball is added to help pull it down to the bottom smoothly. (See pictures 3 & 4.) The bongo is attached to a cable, which is in turn attached to a pulley system that lowers the bongo into the water and pulls it back up again. Since we only want floating plankton, we have to be sure the bongo doesn't scrape the bottom. We lower the bongo to about 5 meters above the bottom, and then bring it back up.

The nets bring in all kinds of zooplankton, very small but big enough to see. (Most phytoplankton are so tiny they slip right through the net!) There are lots of copepods, which are related to lobsters, and sometimes arrow worms, which are tiny predators that love to eat copepods! There are other species as well, including some jellyfish. We have to be very careful to save the entire sample so that scientists back on shore can see exactly what was living near each station. When the nets are back on board, we use a hose to wash the plankton down to the bottom of the net. Then we untie the net, dump the plankton into a sieve, and spray some more to be sure nothing is left in the net. At the end of this process, we tie the bottoms of the nets again (so they are ready for the next tow) and take the sieves with the plankton inside to the wet lab for the next step. I'll describe the process of preserving the plankton samples in tomorrow's log.

Several kinds of data (besides the plankton itself) are collected on each tow. For example, we take water samples to analyze for salinity and chlorophyll, and the EPA scientists are collecting samples of the ocean floor. In the days to come, I will describe them and explain how computers are used to make all of this work easier. Stay tuned!

Personal Log: I am becoming much more comfortable with the routine tasks of the trip. I can handle the bongo pretty well, and can preserve the plankton samples we get. I am learning to operate the computer end of the process and will soon be able to do that on my own. I can use the tracking system to see where we are going next and how long it will be until we get there. Do I have time to take some pictures? How about to grab a snack? I enjoy talking with the crew, and have discovered that "it's a small world after all" – our navigator grew up in Virginia Beach and another crew member just built a house in Chesapeake. I can

now walk without too much trouble, and this morning I awoke before my alarm went off because I heard the engines slow down as we approached a tow station. There is rumor of a cookout on the deck tonight, so I'd better go get in a nap before then!

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